REMARKS

In this reply, no claims have been amended, cancelled, or added. Thus, Claims 37-50 are pending and under consideration in the application. Favorable consideration of the pending claims is requested for the reasons that follow.

I Rejections Under 35 U.S.C. §112, second paragraph: indefiniteness

Claims 37-50 stand rejected under 35 U.S.C. § 112, second paragraph as being allegedly indefinite. Applicant traverses the rejection.

The rejection contends that the specification does not sufficiently define "functional" mast cells to provide a distinction between functional and non- functional mast cells. Definiteness of a claim, however, turns on whether its legal scope is clear enough that a person of ordinary skill in the art could determine whether a particular product or method infringes the claim. See M.P.E.P. §2173.02. If a skilled artisan reading the claims in light of the specification could determine the scope of the claim and ascertain when a claim is infringed, no more is required under 35 U.S.C. § 112, second paragraph. See Orthokinetics Inc. v. Safety Chairs, 1 USPQ2d 1081 (Fed. Cir. 1986).

The end products generated by the claimed method are "functional" mast cells, and Applicant has provided in the specification description of functional mast cells that include, among others, expression of specific cell surface markers, presence of Fcε receptor, degranulation upon activation of Fcε receptor, and release of late phase mediators (*e.g.*, leukotriene LTC4). These characteristics are criteria typically used by those skilled in the art to identify presence of mast cells, as evidenced by the descriptions in the art of record. Moreover, similar to the instant disclosure, standard reference books in immunology, such as *Immunology*, 5th Ed., Janeway et al. eds., Garland Publishing, New York, NY (2001) (submitted as Exhibit A) denotes mast cells as cells containing granules that store a variety of mediator molecules, including the vasoactive amine histamine, presence of high affinity Fcε receptors that bind IgE monomers, and release of granule contents and mast cell activation upon signaling via Fcε receptor. Consequently, the scope of functional mast cells is clear to the skilled artisan. As such, the rejection has not set forth a reasonable basis as to why the descriptions in the

specification, which are clearly harmonious with characterizations in the art, would not inform a skilled artisan of the meaning of a functional mast cell.

Indeed, the word "functional" is a common and ordinary term used by those skilled in the art to describe cultured mast cells. Applicant directs the Patent Office to the reference of Saito et al, 1995, *Int. Arch. Allergy Immunol.* 107(1-3):63-5, cited by the Patent Office during the prosecution of this case. Based on IgE mediated degranulation and the presence of cell surface markers, Saito characterizes the mast cells generated in their culture system as functional mast cells (see, *e.g.*, Abstract). Although the reference of Matsushima suggests the cells in Saito are immature as opposed to mature, as discussed below, this distinction does not make ambiguous functional mast cell since Matsushima also concludes the cells are in fact mast cells and that they behave as MCT type mast cells.

In view of the foregoing, Claims 37-50 are neither vague nor ambiguous, and have sufficient clarity to a person of skill in the art to provide the notice function for determining infringement. See M.P.E.P §2173.02. Accordingly, Applicant requests withdrawal of the rejection of Claims 37-50 under 35 U.S.C. § 112, second paragraph.

II Rejections Under 35 U.S.C. §112, first paragraph: enablement

A. Claims 37, 46-50 are enabled for the full scope of progenitor cells.

Claims 37-50 stand rejected under 35 U.S.C. § 112, first paragraph for alleged lack of enablement. Applicant traverses the rejection.

Any assessment of enablement must begin with a proper construction of the claims. See M.P.E.P. §2164.04. In this process, the claims are to be given their broadest reasonable construction consistent with the specification. See M.P.E.P. §2111. However, it is improper to import descriptions in the specification into the claims. See Id.

The Patent Office appears to construe the method of Claims 37 and 46-50 as requiring a starting population of $1\text{-}10^5$ cells, and in so doing, reaches the conclusion that while the specification is enabled for generating a proliferated population of $10^7\text{-}10^9$ progenitor cells from a starting population of 10^6 CD34+ cells or less, the specification is allegedly nonenabled for generating a proliferated population of progenitor cells comprising $10^{10}\text{-}10^{11}$ cells. Yet nothing in the language of Claims 37 and 46-50 limits the starting number of cells to less than 10^6 cells. What the method of Claim 37 does recite, however, is the growth factors and cytokines to be

used in each step of the method, and in the case of Claims 46-50, the number of progenitor cells used in step b). As the Patent Office has pointed out in the prior Office Action, these numbers of cells can be attained by starting with a larger cell population or by combining cultures. Inserting a limitation with respect to the number of starting cells of $< 10^6$ cells is essentially taking the descriptions in the examples and inserting it into the claim. See M.P.E.P. §2111; see also Specialty Composites v. Cabot Corp., 49 USPQ2d 1199 (Fed. Cir. 1998) (particular embodiments appearing in the specification will not generally be read into the claims). There is no basis to limit the scope of the claims to a particular number of cells for initiating the culture.

The Patent Office also attempts to equate the growth potential of cells described in Zhang et al., 1999, *Chin. J. Biotechol.*, 15:189-94 and Qui et al., 1999, *J. Hematother. Stem Cell Res.*, 8:609-18 with the growth potential of cells in the claimed method. However, neither Zhang nor Qui teaches the claimed multistep method. Both Zhang and Qui use different processes and different combination of growth factors and cytokines as compared to the instant claims. Consequently, it is an improper basis to extrapolate any construed limits on the increase in number of cells interpreted from the data of Zhang or Qui to the instant application.

Given the scope of the claims and the guidance in the specification, the Patent Office has failed to establish a *prima facie* case of nonenablement. Applicant submits that Claims 37 and 46-50 are fully enabled. Accordingly, withdrawal of the rejection under the enablement clause 35 U.S.C. § 112, first paragraph is requested.

B. Claims 37-50 are enabled for cytokines suitable for producing cultured mast cells.

Claims 37-50 stand rejected for alleged lack of enablement under 35 U S. C. § 112, first paragraph for a cytokine other than IL-4 or IL-6. Applicant traverses the rejection.

In advancing the rejection, the Patent Office construes step b) of Claim 37 as contacting progenitor cells of step a) with SCF and *any* cytokine. A proper construction of the claims, as any determination of enablement requires, suggests otherwise. Step b) of Claim 37 recites that the cytokine is "suitable for differentiating progenitor cells to cultured mast cells." The cytokine cannot be any cytokine as suggested by the Patent Office, but a cytokine that has the property, in combination with SCF, of generating functional mast cells from progenitor cells. The art of record and the instant specification contain ample descriptions of these cytokines such that it

would not require undue experimentation for the skilled artisan to choose the appropriate cytokine in step b) to generate mast cells from progenitor cells.

In view of the foregoing, the Patent Office's assertion of step b) of Claim 37 as encompassing any cytokine is not a reasonable construction of the claim and does not support a *prima facie* case of nonenablement. Accordingly, withdrawal of the rejection is requested.

C. Claims 37-50 are fully enabled for functional mast cells.

Claims 37-50 stand rejected for alleged lack of enablement for "functional" mast cells. Applicant traverses the rejection.

The basis of the rejection relies on the studies of Matsushima et al., 2000, *J. Dermatol. Sci.* 24(1):4-13, which analyzed the characteristics of cultured mast cells formed in presence of SCF and IL-6. The rejection, however, is fatal for several reasons.

First, the method described in Matsushima is different from the claimed method. Matsushima follows the method described in Saito, which as Applicant has noted, uses a different process and different growth factor and cytokine combinations. It cannot be concluded that the mast cells produced by the instant method are the same as in Matsushima or that the mast cells will be in the same developmental state.

Second, it is largely irrelevant whether the mast cells produced by the instant method are immature or mature because the claims do not require such a distinction. All that the claims require are the mast cells to be functional mast cells, which the art and the instant disclosure have clearly described with respect to expression of cell surface markers, presence of particular granule contents, responsiveness to signaling though Fcε receptor activation and release of late phase mediators (*e.g.*, LTC4). The Patent Office has not disputed that the cells produced by the claimed method are indeed mast cells and that they possess the manifold properties of mast cells. To require additional characterizations not required by the scope of the claims improperly construes the claim language.

Finally, the instant specification describes the use of IL-6 in combination with SCF in step b) to generate human mucosal airway type mast cells that are tryptase positive/chymase negative, also referred to as "MCT" type mast cells (see, *e.g.*, page 11, line 30 to page 12, line 3). While Matsushima characterizes their mast cells as immature or mature and attempts to differentiate MCTC and MCT type mast cells based on ultrastructural studies, they also conclude

that the mast cells produced by treatment with SCF and IL-6 based on responsiveness to secretagogues are MCT type mast cells (see, *e.g.*, Abstract), the same type of mast cells described in the specification as being generated by the claimed method when IL-6 is the cytokine. Consequently, the conclusions of Matsushima support the full scope of the claimed methods and contradict the Patent Office's position regarding the characteristics of cells produced by the method.

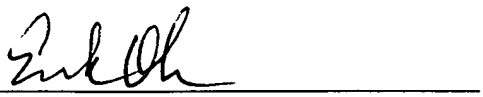
In view of the foregoing, the Patent Office has not advanced a sufficient basis to establish a *prima facie* case of nonenablment for functional mast cells. Accordingly, withdrawal of the rejection under 35 U.S.C. § 112, first paragraph is requested.

III Conclusions

Applicant submits that the claims under examination satisfy all of the statutory requirements for patentability and are in condition for allowance. An early notification of the same is kindly solicited. If the Examiner believes that there are further unresolved issues, Applicant encourages the Examiner to contact the undersigned attorney with any questions or concerns by telephone at (415) 262-4504.

No fees beyond those included with this response are believed due. However, the Commissioner is authorized to charge any additional required fees, including fees for extensions of time, or credit any overpayment to Dechert LLP Deposit Account No. 50-2778 (Docket No. . 375462-002US).

Respectfully submitted,
DECHERT LLP

Dated: May 25, 2005 By: 

Euk Y. Oh, Reg. No. 54,345 for
Ann M. Caviani Pease, Reg. No. 42,067

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Customer No.: 37509
DECHERT LLP
P.O. Box 10004
Palo Alto, CA 94303-0961
Telephone: (415) 262-4504
Fax No. (650) 813-4048